

Claims:

1. (Currently Amended) A battery, comprising:

a battery case;

an electrode assembly disposed within the battery case, said electrode assembly including at least a first electrode tab and a second electrode tab;

a feedthrough pin having a substantially vertical segment and a laterally extending segment including a distal end;

a battery cover coupled to the battery case;

a headspace insulator having a top surface and a bottom surface, the bottom surface having a recess to receive ~~a receiving area configured to receive and lock into place a~~ the distal end of [[a]] the feedthrough pin, the headspace insulator further having a detent located within the recess and configured to accept the distal end segment of the feedthrough pin and to hold the distal end of the feedthrough pin in place with an interference fit when the distal end of the feedthrough pin is received into the recess; and

~~a feedthrough assembly, said feedthrough assembly further comprising[[:]]~~

a conductive ferrule, ~~a feedthrough pin,~~ and an insulating member, wherein the recess forms a receiving area for the distal end of the feedthrough pin such that the distal end of the said feedthrough pin having a distal end is locked into the receiving area of the headspace insulator to resist movement and wherein the distal end of the feedthrough pin is coupled to the second electrode tab.

2. (Original) A battery according to claim 1, further comprising a weld bracket coupled to the battery cover, the weld bracket coupled to the first electrode tab.

3. (Currently Amended) A battery according to claim 1, wherein the headspace insulator couples to the battery cover near a slot in the headspace insulator, ~~said slot disposed adjacent the weld bracket.~~

4. (Original) A battery according to claim 1, further comprising a first electrode opening to accept the first electrode tab, and a second electrode opening to accept the second electrode tab.

5. (Original) A battery according to claim 1, further comprising a case liner disposed around at least a portion of the electrode assembly.

6. (Original) A battery according to claim 1, further comprising:
a coil insulator having slits; and a case liner enclosing the electrode assembly with a portion of the first electrode tab and a portion of the second electrode tab extending through the slits.

7. (Original) A battery according to claim 3, wherein the headspace insulator further comprises a substantially solid, generally parallelepiped shaped unit.

8. (Original) A battery according to claim 7, wherein the headspace insulator further comprises a raised portion adapted to couple to the battery cover.

9. (Original) A battery according to claim 8, wherein the headspace insulator further comprises a feedthrough aperture adapted to receive the feedthrough assembly.

10. (Original) A battery according to claim 9, wherein the headspace insulator further comprises a pin aperture adapted to receive the feedthrough pin.

11. (Original) A battery according to claim 10, wherein the pin aperture further comprises a curved portion, said curved portion adapted to support the feedthrough pin.

12. (Original) A battery according to claim 1, wherein the receiving area holds the distal end still during mechanical shock to the battery.

13. (Original) A battery according to claim 9, wherein the headspace insulator isolates the feedthrough pin.

14. (Currently Amended) A battery according to claim 12, wherein the receiving area further comprises indentations that form detents that lock the distal end of the feedthrough pin into the receiving area.

15. (Original) A battery according to claim 13, wherein the headspace insulator further comprises a fillport means for admitting electrolyte into the electrode assembly.

16. (Currently Amended) A battery according to claim 3, further comprising a weld bracket and wherein the slot isolates the weld bracket from the feedthrough pin and the second electrode tab.

17. (Withdrawn) A headspace insulator for a battery in an implantable medical device, comprising:

a body of electrically and thermally insulating material disposed between a battery electrode assembly and a battery cover;

a receiving area within the body that receives and isolates a battery feedthrough pin; and

an indentation within the receiving area that retains the battery feedthrough pin once the feedthrough pin is disposed within the receiving area.

18. (Withdrawn) A headspace insulator according to claim 17, wherein the headspace insulator further comprises a raised portion that couples to a battery cover and provides an air gap between the cover and the headspace insulator near a battery case to battery cover weld areas.

19. (Withdrawn) A headspace insulator according to claim 17, wherein the headspace insulator further comprises a feedthrough aperture that receives a battery feedthrough assembly.

20. (Withdrawn) A headspace insulator according to claim 17, wherein the headspace insulator further comprises a pin aperture that receives the feedthrough pin.

21. (Withdrawn) A headspace insulator according to claim 17, wherein the pin aperture further comprises a curvature that provides support for the feedthrough pin.

22. (Withdrawn) A headspace insulator according to claim 17, wherein the receiving area restrains motion of the feedthrough pin in the event of abrupt motion of the battery.

23. (Withdrawn) A headspace insulator according to claim 17, wherein the headspace insulator further comprises a fillport feature adapted to allow a fluidic electrolyte to flow through a portion of the headspace insulator and into the electrode assembly.

24. (Withdrawn) A headspace insulator according to claim 17, wherein the headspace insulator further comprises a slot that locates a battery weld bracket and isolates it from the feedthrough pin.

25. (Withdrawn) A method of manufacturing a battery for an implantable medical device, comprising:

- placing a case liner and a coil insulator over an electrode assembly;
- coupling a weld bracket to a battery cover;
- coupling a headspace insulator to the battery cover;
- bending the feedthrough pin;
- locking a distal end of the feedthrough pin into a receiving area in the headspace insulator;
- aligning the headspace insulator with the electrode assembly so a second electrode tab on the electrode assembly is accepted within a second electrode opening in the headspace insulator and a first electrode tab on the electrode assembly is accepted within a first electrode opening in the headspace insulator;
- coupling the second electrode tab and the distal end of the feedthrough pin;
- coupling the first electrode tab and the weld bracket;
- placing the electrode assembly within the battery case; and
- coupling the battery cover to the battery case.

26. (Withdrawn) A method according to claim 25, further comprising the step of filling the battery case with an electrolyte through a fill port.

27. (Withdrawn) A method according to claim 26, further comprising the step of sealing the battery case with a closing ball and button.

28. (Withdrawn) A method according to claim 25, wherein the coil insulator is comprised of slits to receive the first electrode tab and the second electrode tab.